

FIG.1

DATA RECEPTION APPARATUS

RTP RECEPTION SECTION

RTCP TRANSMISSION SECTION

- 5 CONTROL INFORMATION TRANSMISSION/RECEPTION SECTION
SERVER

FIG.2

DATA RECEPTION APPARATUS

- 10 RTP RECEPTION SECTION

RTCP TRANSMISSION SECTION

CONTROL INFORMATION TRANSMISSION/RECEPTION SECTION
SERVER

15 FIG.3

10 DISTRIBUTION SERVER

20 WIRED NETWORK

30 GATEWAY

40 BASE STATION

- 20 50 MOBILE STATION

FIG.4

COMMUNICATION NETWORK

TRANSPORT LAYER PROTOCOL

- 25 NETWORK LAYER PROTOCOL

FIG.5

ADAPTIVE CONTROL IN MULTI-MEDIA REAL-TIME COMMUNICATION

```

60   DETERMINE TRANSMISSION INTERVAL (FIXED INTERVAL OR
TOLERABLE MAXIMUM INTERVAL) OF RECEIVER REPORT PACKET DYNAMICALLY
BETWEEN DATA DISTRIBUTION SERVER AND RECEPTION TERMINAL
5   70   DATA DISTRIBUTION SERVER MONITOR RECEPTION CONDITIONS OF
RECEIVER REPORT PACKET SENT FROM RECEPTION TERMINAL IN UNIT OF
SET TIME INTERVAL
80   COMPARE NUMBER OF TIMES OF FAILED RECEPTIONS OF RECEIVER
REPORT PACKETS WITH ONE OR MORE THRESHOLD(S), AND IN ACCORDANCE
10  WITH THE COMPARISON RESULT, PERFORM ADAPTIVE CONTROL SUCH AS
CHANGING OF DATA TRANSMISSION RATE OR ENDING OF SESSION
END

```

FIG. 6

```

15  301  SERVER
302  CONTROL INFORMATION TRANSMISSION/RECEPTION SECTION
303  TCP TRANSMISSION/RECEPTION SECTION
311  COUNTER
310  TIMER
20  305  SENDER REPORT PACKET GENERATION SECTION
307  RTCP TRANSMISSION/RECEPTION SECTION
309  UDP TRANSMISSION/RECEPTION SECTION
306  MEDIA STORAGE SECTION
308  RTP TRANSMISSION SECTION
25  312  TRANSMISSION RATE ADJUSTMENT SECTION
313  SESSION DISCONNECTION SECTION
101  DATA RECEPTION APPARATUS

```

- 102 CONTROL INFORMATION TRANSMISSION/RECEPTION SECTION
- 103 TCP TRANSMISSION/RECEPTION SECTION
- 104 RECEIVER REPORT TRANSMISSION INTERVAL DETERMINATION SECTION
- 5 105 RECEIVER REPORT PACKET GENERATION SECTION
- 107 RTCP TRANSMISSION/RECEPTION SECTION
- 109 UDP TRANSMISSION/RECEPTION SECTION
- 106 MEDIA PLAYBACK SECTION
- 108 RTP RECEPTION SECTION
- 10 200 COMMUNICATION NETWORK

FIG.7

DATA RECEPTION APPARATUS

RTP RECEPTION SECTION

- 15 RTCP TRANSMISSION SECTION
- CONTROL INFORMATION TRANSMISSION/RECEPTION SECTION
- SERVER
- COUNTER=0
- COUNTER=1
- 20 COUNTER=2
- TRANSMISSION INTERVAL=TRR-MAX-INT (ms)
- TRANSMISSION INTERVAL=TRR-MAX-INT (ms)

FIG.8

- 25 OPERATION AT SERVER SIDE
- ST10001 ACCEPT SETUP REQUEST
- ST10002 RECEIVE SET_PARAMETER

```

                                trr-max-int=5000
ST10003      ACCEPT PLAYBACK REQUEST, START RTP PACKET
TRANSMISSION
ST10004      RECEIVE RECEIVER REPORT PACKET
5  ST10005      SET COUNTER=0
ST10006      START TIMER (t=0)
ST10007      RECEIVER REPORT PACKET RECEIVED?
ST10008      t>trr-max-int+α?
ST10009      INCREMENT COUNTER BY 1
10 ST10010      COUNTER=5?
ST10011      MINIMUM TRANSMISSION RATE?
ST10012      COUNTER=10?
ST10013      REDUCE RTP TRANSMISSION RATE
ST10014      END RTP PACKET TRANSMISSION
15 ST10015      ADJUST TRANSMISSION RATE

```

FIG.9

RTSP REQUEST FROM DATA RECEPTION APPARATUS TO SERVER

20 FIG.10

RTSP RESPONSE FROM SERVER TO DATA RECEPTION APPARATUS

FIG.11

```

301  SERVER
25  302  CONTROL INFORMATION TRANSMISSION/RECEPTION SECTION
303  TCP TRANSMISSION/RECEPTION SECTION
304  RECEIVER REPORT TRANSMISSION INTERVAL DETERMINATION

```

	SECTION
	311 COUNTER
	310 TIMER
	305 SENDER REPORT PACKET GENERATION SECTION
5	307 RTCP TRANSMISSION/RECEPTION SECTION
	309 UDP TRANSMISSION/RECEPTION SECTION
	306 MEDIA STORAGE SECTION
	308 RTP TRANSMISSION SECTION
	312 TRANSMISSION RATE ADJUSTMENT SECTION
10	313 SESSION DISCONNECTION SECTION
	101 DATA RECEPTION APPARATUS
	202 CONTROL INFORMATION TRANSMISSION/RECEPTION SECTION
	103 TCP TRANSMISSION/RECEPTION SECTION
	204 RECEIVER REPORT TRANSMISSION INTERVAL DETERMINATION
15	SECTION
	105 RECEIVER REPORT PACKET GENERATION SECTION
	107 RTCP TRANSMISSION/RECEPTION SECTION
	109 UDP TRANSMISSION/RECEPTION SECTION
	106 MEDIA PLAYBACK SECTION
20	108 RTP RECEPTION SECTION
	200 COMMUNICATION NETWORK

FIG.12

AUDIO/VIDEO COMMON INFORMATION

25 AUDIO INFORMATION

AUDIO DATA ADDITIONAL INFORMATION ACCORDING TO PRESENT INVENTION

VIDEO INFORMATION

VIDEO DATA ADDITIONAL INFORMATION ACCORDING TO PRESENT INVENTION